

STIC-Biotech/ChemLib

176958

From: Fredman, Jeffrey
Sent: Wednesday, January 18, 2006 4:24 PM
To: STIC-Biotech/ChemLib
Subject: 10/656,826

Please search the structure of claim 42. (In claims 7/2/04 document).

Thanks,

Jeffrey Fredman
Art Unit 1637
Remsen Building 2C89
(571)272-0742

STIC
JAN 19 2006
JAN 19 2006

Searcher: Jan
Searcher Phone: 122504
Date Searcher Picked up: 1/30/06
Date completed: 1/30/06
Searcher Prep Time: 20
Online Time: + 40

Type of Search
NA# _____ AA# _____
S/L: _____ Oligomer: _____
Encode/Transl: _____
Structure #: ☒ Text: _____
Inventor: _____ Litigation: _____

Vendors and cost where applicable
STN: _____
DIALOG: _____
QUESTEL/ORBIS: _____
LEXIS/NEXIS: _____
SEQUENCE SYSTEM: ☒ _____
WWW/Internet: _____
Other (Specify): _____

=> fil reg

FILE 'REGISTRY' ENTERED AT 08:02:45 ON 30 JAN 2006

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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 27 JAN 2006 HIGHEST RN 872965-93-0

DICTIONARY FILE UPDATES: 27 JAN 2006 HIGHEST RN 872965-93-0

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

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*****
*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added,   *
* effective March 20, 2005. A new display format, IDERL, is now    *
* available and contains the CA role and document type information. *
*
*****
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Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

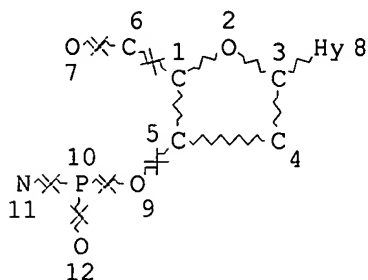
<http://www.cas.org/ONLINE/UG/regprops.html>

=> d sta que 122

L22 530 SEA FILE=REGISTRY ABB=ON PLU=ON 5268.46/RID

=> d sta que 140

L38 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 12

STEREO ATTRIBUTES: NONE

L40 6615 SEA FILE=REGISTRY SSS FUL L38

100.0% PROCESSED 14808 ITERATIONS
 SEARCH TIME: 00.00.01

6615 ANSWERS

=> d his

(FILE 'HOME' ENTERED AT 07:24:51 ON 30 JAN 2006)
 SET COST OFF

FILE 'HCAPLUS' ENTERED AT 07:25:19 ON 30 JAN 2006

L1 1 S US20040225119/PN OR US2003-656826#/AP, PRN
 E BENZON S/AU
 E BENSON S/AU
 L2 42 S E3, E5
 L3 40 S E22-E24
 E MENCHEN S/AU
 L4 71 S E3, E6-E10
 E THEISEN P/AU
 L5 14 S E3, E4, E11-E13
 E HENNESSEY K/AU
 L6 3 S E3, E9
 E FURNISS V/AU
 L7 3 S E4
 E HAUSER J/AU
 L8 356 S E3
 E HAUSER JOAN/AU
 L9 5 S E3-E5
 L10 1 S L1 AND L2-L9
 L11 21 S L2-L9 AND DYE?/SC, SX
 L12 34 S L2-L9 AND DYE?/CW, CT
 L13 53 S L2-L9 AND DYE?
 L14 54 S L11-L13
 L15 8 S L14 AND ASYM?
 L16 8 S L10, L15
 L17 46 S L14 NOT L16

FILE 'REGISTRY' ENTERED AT 07:30:45 ON 30 JAN 2006

FILE 'HCAPLUS' ENTERED AT 07:30:45 ON 30 JAN 2006

SET SMARTSELECT ON
 L18 SEL L16 1- RN : 143 TERMS
 SET SMARTSELECT OFF

FILE 'REGISTRY' ENTERED AT 07:30:45 ON 30 JAN 2006

L19 143 S L18
 L20 1 S L19 AND OC5-C6-C6-C6/ES
 E 5268/RID
 L21 27196 S E3
 E 5268.46/RID
 L22 530 S E3
 L23 7 S E26
 L24 523 S L22 NOT L23

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L25          7 S L20,L23

FILE 'HCAOLD' ENTERED AT 07:32:37 ON 30 JAN 2006
L26          0 S L25
L27          13 S L24

FILE 'HCAPLUS' ENTERED AT 07:33:14 ON 30 JAN 2006
L28          3 S L25
L29          298 S L24

FILE 'REGISTRY' ENTERED AT 07:34:35 ON 30 JAN 2006
L30          0 S L19 AND OC4/ES AND (P AND N)/ELS
L31          4 S L19 AND OC4/ES
L32          0 S L19 AND NUCLEIC?/FS
L33          STR
L34          50 S L33
L35          0 S L25 AND OC4/ES
L36          3 S L24 AND OC4/ES
L37          1 S L36 AND N/ELS
L38          STR L33
L39          50 S L38
L40          6615 S L38 FUL
              SAV TEMP L40 FRED656/A
L41          0 S L40 AND OC5-C6-C6-C6/ES

FILE 'HCAPLUS' ENTERED AT 07:38:43 ON 30 JAN 2006
L42          1 S L37
L43          3262 S L40
L44          0 S L28 AND L43
L45          0 S L29 AND L43
L46          1 S L28,L42 AND (PD<=19960401 OR PRD<=19960401 OR AD<=19960401)
L47          1 S L28,L42 AND (PD<=19970401 OR PRD<=19970401 OR AD<=19970401)
L48          1 S L28,L42 AND (PD<=19970326 OR PRD<=19970326 OR AD<=19970326)
L49          2 S L1-L17 AND L28
L50          0 S L1-L17 AND L29
L51          3 S L1-L17 AND L40
L52          13 S L16,L46-L51
L53          13 S L42,L52
L54          7 S L53 AND (PY<=1996 OR PRY<=1996 OR AY<=1996)
L55          9 S L53 AND (PY<=1997 OR PRY<=1997 OR AY<=1997)
L56          9 S L54,L55
L57          5 S L56 AND L28,L29,L42,L43
L58          4 S L56 NOT L57
L59          2 S L28,L29 AND L1-L17
L60          1 S L59 AND (PY<=1997 OR PRY<=1997 OR AY<=1997)
L61          5 S L57,L60
L62          0 S L28 AND (PY<=1996 OR PRY<=1996 OR AY<=1996)
L63          1 S L28 AND (PY<=1997 OR PRY<=1997 OR AY<=1997)
L64          5 S L61,L63
L65          6 S L1,L64
L66          6 S L65 AND L1-L17,L28,L29,L42-L65
L67          3 S L28,L29 AND ?NUCLEOTID?
L68          2 S L28,L29 AND ?NUCLEOSID?
L69          2 S L28,L29 AND ?OLIGO?
L70          0 S L28,L29 AND ?NUCLEIC?
L71          2 S L28,L29 AND (DNA OR CDNA OR RNA OR MRNA)
              E NUCLEIC ACIDS/CT
L72          1 S L28,L29 AND E3+OLD,NT,PFT,RT/CT
L73          0 S L28,L29 AND E3-E16,E20
L74          0 S L28,L29 AND E73-E75

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L75 0 S L28,L29 AND E136-E141
L76 0 S L28,L29 AND E151+OLD,NT
L77 0 S L28,L29 AND E165+OLD,NT
L78 2 S L28,L29 AND E174+OLD,NT
L79 1 S L28,L29 AND E199-E215
L80 0 S L28,L29 AND E222+OLD,NT
L81 2 S L28,L29 AND E252+OLD,NT
L82 1 S L28,L29 AND E310-E327
E POLYNUCLEOTIDE/CT
L83 1 S L28,L29 AND E8-E10
L84 1 S L28,L29 AND E8+OLD,NT,PFT,RT
E DNA/CT
L85 1 S L28,L29 AND E3+OLD,NT,PFT,RT
L86 0 S L28,L29 AND (E78+OLD,NT,PFT,RT OR E79+OLD,NT,PFT,RT OR E80+OL
E E169+ALL
L87 0 S L28,L29 AND E3+OLD,NT
L88 0 S L28,L29 AND E21+OLD,NT,PFT,RT
L89 0 S L28,L29 AND E22+OLD,NT,PFT,RT
L90 0 S L28,L29 AND E23+OLD,NT,PFT,RT
L91 0 S L28,L29 AND GENETIC?/SC,SX
L92 6 S L67-L91
L93 2 S L92 AND (PY<=1997 OR PRY<=1997 OR AY<=1997)
L94 6 S L66,L93
SEL HIT RN

FILE 'REGISTRY' ENTERED AT 08:00:39 ON 30 JAN 2006

L95 14 S E1-E14

FILE 'HCAPLUS' ENTERED AT 08:00:59 ON 30 JAN 2006

L96 2 S L94 AND L28,L29
L97 1 S L94 AND L1
L98 3 S L96,L97
L99 1 S L93 AND L20
L100 3 S L98,L99
L101 3 S L94 NOT L100

FILE 'REGISTRY' ENTERED AT 08:02:45 ON 30 JAN 2006

=> fil hcaplus

FILE 'HCAPLUS' ENTERED AT 08:03:05 ON 30 JAN 2006

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FILE COVERS 1907 - 30 Jan 2006 VOL 144 ISS 6

FILE LAST UPDATED: 29 Jan 2006 (20060129/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d 1100 all hitstr tot

L100 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 1999:233965 HCAPLUS
 DN 130:283357
 ED Entered STN: 15 Apr 1999
 TI Aromatic-substituted xanthene energy transfer **dyes** for
 fluorescent labeling of **nucleotides**
 IN **Benson, Scott Conrad; Menchen, Steven Michael;**
Theisen, Peter David; Upadhy, Krishna Gajanan; Hauser, Joan
 Dale
 PA The Perkin-Elmer Corporation, USA
 SO PCT Int. Appl., 57 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C09B0011-08
 ICS C07H0019-04; C07H0021-00; C12Q0001-68; C09B0011-24
 CC 41-5 (**Dyes**, Organic Pigments, Fluorescent Brighteners, and
 Photographic Sensitizers)
 Section cross-reference(s): 9
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9916832	A1	19990408	WO 1998-US19555	19980918 <--
	W: AU, CA, JP				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 6008379	A	19991228	US 1997-942067	19971001 <--
	CA 2304645	AA	19990408	CA 1998-2304645	19980918 <--
	AU 9894935	A1	19990423	AU 1998-94935	19980918 <--
	AU 727178	B2	20001207		
	EP 1019453	A1	20000719	EP 1998-948346	19980918 <--
	EP 1019453	B1	20040331		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2001518479	T2	20011016	JP 2000-513909	19980918 <--
	AT 263213	E	20040415	AT 1998-948346	19980918 <--
	EP 1441011	A1	20040728	EP 2004-75950	19980918 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY				
	JP 2004043772	A2	20040212	JP 2003-22825	20030130 <--
	JP 2005002336	A2	20050106	JP 2004-160363	20040528 <--
PRAI	US 1997-942067	A	19971001	<--	
	EP 1998-948346	A3	19980918		
	JP 2000-513909	A3	19980918		
	JP 2003-22825	A3	19980918		
	WO 1998-US19555	W	19980918		

CLASS

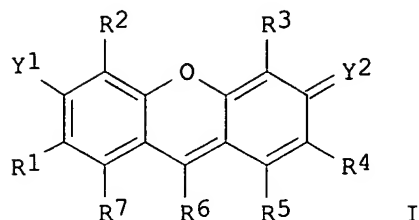
PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9916832	ICM	C09B0011-08
	ICS	C07H0019-04; C07H0021-00; C12Q0001-68; C09B0011-24
	IPCI	C09B0011-08 [ICM,6]; C07H0019-04 [ICS,6]; C07H0021-00 [ICS,6]; C12Q0001-68 [ICS,6]; C09B0011-24 [ICS,6]
	ECLA	C07H019/04; C07H021/00G; C09B011/08 <--
US 6008379	IPCI	C07D0311-82 [ICM,6]

	NCL	549/224.000; 435/006.000; 536/026.600	
	ECLA	C07H019/04; C07H021/00G; C09B011/08	<--
CA 2304645	IPCI	C09B0011-08 [ICM,7]; C07H0021-00 [ICS,7]; C07H0019-04 [ICS,7]; C12Q0001-68 [ICS,7]	<--
AU 9894935	IPCI	C09B0011-08 [ICM,6]; C07H0019-04 [ICS,6]; C07H0021-00 [ICS,6]; C12Q0001-68 [ICS,6]; C09B0011-24 [ICS,6]	<--
EP 1019453	IPCI	C09B0011-08 [ICM,6]; C07H0019-04 [ICS,6]; C07H0021-00 [ICS,6]; C12Q0001-68 [ICS,6]; C09B0011-24 [ICI,6]	<--
JP 2001518479	IPCI	C07D0311-82 [ICM,7]; C07D0407-14 [ICS,7]; C07D0493-04 [ICS,7]; C07H0019-06 [ICS,7]; C07H0019-10 [ICS,7]; C07H0019-14 [ICS,7]; C07H0019-16 [ICS,7]; C07H0019-20 [ICS,7]; C09B0011-28 [ICS,7]; C12Q0001-68 [ICS,7]; G01N0021-78 [ICS,7]; G01N0033-533 [ICS,7]	<--
AT 263213	IPCI	C09B0011-08 [ICM,7]; C07H0019-04 [ICS,7]; C07H0021-00 [ICS,7]; C12Q0001-68 [ICS,7]; C09B0011-24 [ICS,7]	<--
EP 1441011	IPCI	C09B0011-08 [ICM,7]; C07H0019-04 [ICS,7]; C07H0021-00 [ICS,7]; C12Q0001-68 [ICS,7]; C09B0011-24 [ICS,7]	
	ECLA	C07H019/04; C07H021/00; C09B011/08	<--
JP 2004043772	IPCI	C09B0011-28 [ICM,7]; C07D0311-82 [ICS,7]; C07D0407-14 [ICS,7]; C07D0493-04 [ICS,7]; C07D0493-14 [ICS,7]; C07H0019-10 [ICS,7]; C07H0019-20 [ICS,7]; C09K0011-06 [ICS,7]; C12N0015-09 [ICS,7]; C12Q0001-68 [ICS,7]; G01N0021-64 [ICS,7]; G01N0033-58 [ICS,7]	
	FTERM	2G043/AA04; 2G043/BA16; 2G043/DA02; 2G043/EA01; 2G043/EA19; 2G043/JA01; 2G043/JA03; 2G043/KA02; 2G043/KA05; 2G043/KA09; 2G043/LA02; 2G043/LA03; 2G045/DA12; 2G045/DA13; 2G045/DA14; 2G045/FB02; 2G045/FB05; 2G045/FB07; 2G045/FB12; 2G045/GC15; 4B024/AA11; 4B024/CA04; 4B024/CA05; 4B024/CA06; 4B024/CA09; 4B024/CA10; 4B024/HA08; 4B024/HA12; 4B024/HA14; 4B024/HA19; 4B063/QA01; 4B063/QA13; 4B063/QA18; 4B063/QQ42; 4B063/QR08; 4B063/QR32; 4B063/QR41; 4B063/QR42; 4B063/QR62; 4B063/QR63; 4B063/QR66; 4B063/QR82; 4B063/QS12; 4B063/QS16; 4B063/QS25; 4B063/QS34; 4B063/QX02; 4C057/BB02; 4C057/DD01; 4C057/LL10; 4C057/LL21; 4C057/LL27; 4C057/LL44; 4C062/HH21; 4C063/AA03; 4C063/BB01; 4C063/CC79; 4C063/DD76; 4C063/EE05; 4C063/EE10; 4C071/AA01; 4C071/AA07; 4C071/AA08; 4C071/BB01; 4C071/BB02; 4C071/BB08; 4C071/CC12; 4C071/CC13; 4C071/EE05; 4C071/FF15; 4C071/FF17; 4C071/GG06; 4C071/HH01; 4C071/HH05; 4C071/HH08; 4C071/JJ01; 4C071/KK01; 4C071/LL04; 4C071/LL07; 4H056/BA02; 4H056/BB05; 4H056/BB14; 4H056/BC01; 4H056/BD01; 4H056/BD07; 4H056/BF04E; 4H056/BF07; 4H056/BF09F; 4H056/BF34; 4H056/FA08	<--
JP 2005002336	IPCI	C09B0011-28 [ICM,7]; C07D0311-82 [ICS,7]; C07D0407-14 [ICS,7]; C07D0493-04 [ICS,7]; C07D0493-14 [ICS,7]; G01N0033-533 [ICS,7]; C12Q0001-68 [ICS,7]	
	FTERM	4B063/QA01; 4B063/QA13; 4B063/QA18; 4B063/QQ42; 4B063/QQ52; 4B063/QR08; 4B063/QR32; 4B063/QR56; 4B063/QR66; 4B063/QR82; 4B063/QS03; 4B063/QS25; 4B063/QS34; 4B063/QS36; 4B063/QX02; 4C062/HH21; 4C063/AA03; 4C063/BB01; 4C063/CC79; 4C063/DD76; 4C063/EE10; 4C071/AA01; 4C071/AA07; 4C071/AA08; 4C071/BB01; 4C071/BB02; 4C071/CC12; 4C071/CC13; 4C071/EE05; 4C071/FF15; 4C071/FF17; 4C071/GG02; 4C071/GG06; 4C071/HH05; 4C071/HH08; 4C071/JJ01; 4C071/LL04; 4H056/BA02; 4H056/BB05; 4H056/BB14; 4H056/BC01; 4H056/BD01; 4H056/BD03; 4H056/BD07;	

4H056/BF04E; 4H056/BF07; 4H056/BF09F; 4H056/BF34;
4H056/BF38E; 4H056/FA08

<--

OS MARPAT 130:283357
GI



AB The fluorescent **dyes** I (Y1 and Y2 taken sep. are selected from the group consisting of hydroxyl, oxygen, iminium, linking group, and amine, or Y1 taken together with R2 is cyclic imine, or Y2 taken together with R3 is cyclic amine; R2, R3, R5, and R7 taken sep. are selected from the group consisting of hydrogen, fluorine, chlorine, lower alkyl, lower alkene, lower alkyne, sulfonate, sulfone, amino, iminium, amido, nitrile, lower alkoxy, Ph, and linking group; R1 taken sep. is selected from the group consisting of Ph, substituted Ph, polycyclic aromatic, substituted polycyclic aromatic, linking group and electron-rich heterocycle, or when taken together with R7 is selected from the group consisting of electron-rich heterocycle and indene; R4 taken sep. is selected from the group consisting of amino, amido, Ph, substituted Ph, polycyclic aromatic, substituted polycyclic aromatic, indene, linking group and electron-rich heterocycle, or when taken together with R5 is selected from the group consisting of Ph, substituted Ph, polycyclic aromatic, substituted polycyclic aromatic, indene, and electron-rich heterocycle; and R6 is selected from the group consisting of acetylene, lower alkyl, lower alkene, cyano, Ph, substituted Ph, and heterocyclic aromatic) are disclosed. In another aspect, the invention includes methods for synthesizing I and intermediates. In yet another aspect, the present invention includes reagents labeled with the **asym. benzoxanthene dye** compds., including **deoxynucleotides**, **dideoxynucleotides**, **phosphoramidites**, and **polynucleotides**. In an addnl. aspect, the invention includes methods utilizing such **dye** compds. and reagents including dideoxy **polynucleotide** sequencing and fragment anal. methods. In an example, I (R1 = Ph; R2, R3, R5, R7 = H; R4 = Cl; R6 = 2,4-dicarboxy-3,6-dichlorophenyl; Y1 = HO; Y2 = O) was prepared by cyclocondensation of 4-phenyl-1,3-dihydroxybenzene with the appropriate benzophenone and then converted to the H-hydroxysuccinimidyl ester and used to label an aminohexyl derivatized **oligonucleotide** PCR primer.

ST xanthene **dye** fluorescent prepn **nucleotide** label

IT **Oligonucleotides**

RL: IMF (Industrial manufacture); PREP (Preparation)
(labeled; production of fluorescent xanthene **dyes** for)

IT Fluorescent **dyes**

Fluorescent indicators

(production of fluorescent xanthene **dyes** for labeling of
nucleotides)

IT 222547-73-1P

RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or
engineered material use); PREP (Preparation); RACT (Reactant or reagent);
USES (Uses)

(dye; production of fluorescent xanthene dyes for labeling of nucleotides)

IT 222547-74-2P 222547-75-3P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(dye; production of fluorescent xanthene dyes for labeling of nucleotides)

IT 195136-68-6P, 2-Fluoro-1,3-dimethoxybenzene 222547-67-3P, 1-Fluoro-2-naphthylboronic acid 222547-68-4P, 4-Bromo-2-fluoro-1,3-dimethoxybenzene 222547-69-5P, 2-Fluoro-1,3-dihydroxy-4-(2-naphthyl)benzene 222547-70-8P 222547-71-9P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(intermediate; production of fluorescent xanthene dyes for labeling of nucleotides)

IT 74-88-4, Methyl iodide, reactions 121-43-7, Trimethyl borate 128-08-5, N-Bromosuccinimide 134-52-1, 4-Phenyl-1,3-benzenediol 321-38-0, 1-Fluoronaphthalene 25952-53-8, 1-[3-(Dimethylamino)propyl]-3-ethylcarbodiimide hydrochloride 32316-92-0, 2-Naphthylboronic acid 81742-10-1, 2,5-Dichlorotrimellitic anhydride 93680-71-8, 1,3-Dibenzofurandiol 103068-40-2, 2-Fluororesorcinol 222547-72-0
 RL: RCT (Reactant); RACT (Reactant or reagent)

(starting material; production of fluorescent xanthene dyes for labeling of nucleotides)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

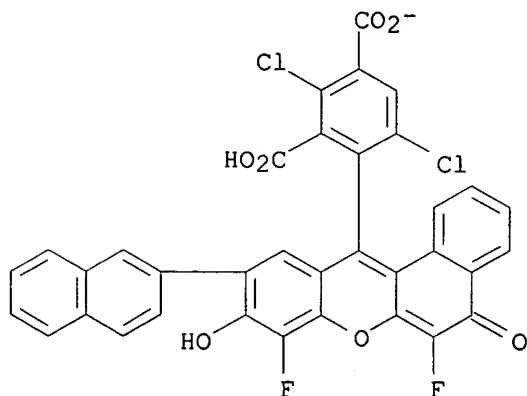
(1) Applied Biosystems; US 5188934 A HCAPLUS
 (2) Applied Biosystems; WO 9107507 A 1991 HCAPLUS
 (3) Applied Biosystems; WO 9405688 A 1994 HCAPLUS
 (4) Baylor College Medicine; WO 9700967 A 1997 HCAPLUS
 (5) Du Pont; EP 0252683 A 1988 HCAPLUS
 (6) Mathies, R; US 5654419 A 1997 HCAPLUS

IT 222547-73-1P
 RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(dye; production of fluorescent xanthene dyes for labeling of nucleotides)

RN 222547-73-1 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, 2,5-dichloro-4-[6,8-difluoro-9-hydroxy-10-(2-naphthalenyl)-5-oxo-5H-benzo[a]xanthen-12-yl]-, ion(1-) (9CI) (CA INDEX NAME)



L100 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1997:679141 HCAPLUS

DN 127:328679

ED Entered STN: 25 Oct 1997

TI **Asymmetric benzoxanthene dyes**

IN **Benson, Scott C.; Menchen, Steven M.; Theisen, Peter D.; Hennessey, Kevin M.; Furniss, Vergine C.; Hauser, Joan**

PA Perkin-Elmer Corp., USA

SO PCT Int. Appl., 74 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C09B0011-24

ICS C09B0011-28; C07H0021-00; C12Q0001-68; G01N0033-52; C09B0011-08; C07C0039-14; C07C0039-38

CC 9-5 (Biochemical Methods)

Section cross-reference(s): 3, 33, 41

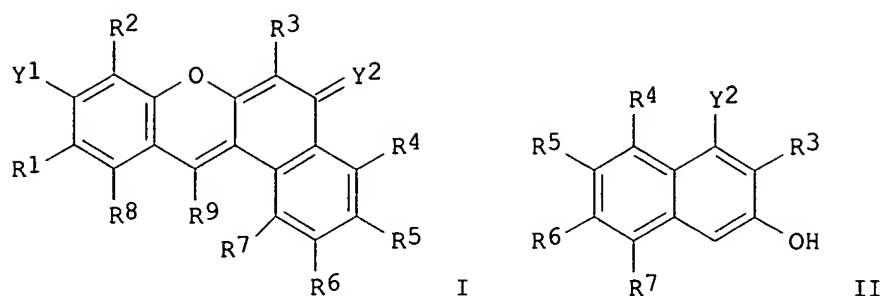
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9736960	A1	19971009	WO 1997-US5376	19970401 <--
	W: AU, CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 6020481	A	20000201	US 1996-626085	19960401 <--
	US 5840999	A	19981124	US 1997-824102	19970326 <--
	CA 2250014	AA	19971009	CA 1997-2250014	19970401 <--
	CA 2250014	C	20040224		
	CA 2450501	AA	19971009	CA 1997-2450501	19970401 <--
	AU 9724323	A1	19971022	AU 1997-24323	19970401 <--
	AU 707242	B2	19990708		
	EP 891393	A1	19990120	EP 1997-920028	19970401 <--
	EP 891393	B1	19990630		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	AT 181741	E	19990715	AT 1997-920028	19970401 <--
	JP 2000500183	T2	20000111	JP 1997-535550	19970401 <--
	JP 3386473	B2	20030317		
	JP 2003192931	A2	20030709	JP 2002-262149	19970401 <--
	US 6303775	B1	20011016	US 2000-495111	20000201 <--
	US 2002115067	A1	20020822	US 2001-976842	20011011 <--
	US 6617445	B2	20030909		
	US 2004225119	A1	20041111	US 2003-656826	20030905 <--
PRAI	US 1996-626085	A	19960401	<--	
	CA 1997-2250014	A3	19970401	<--	
	JP 1997-535550	A3	19970401	<--	
	WO 1997-US5376	W	19970401	<--	
	US 2000-495111	A1	20000201		
	US 2001-976842	A1	20011011		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9736960	ICM	C09B0011-24
	ICS	C09B0011-28; C07H0021-00; C12Q0001-68; G01N0033-52; C09B0011-08; C07C0039-14; C07C0039-38
	IPCI	C09B0011-24 [ICM,6]; C09B0011-28 [ICS,6]; C07H0021-00 [ICS,6]; C12Q0001-68 [ICS,6]; G01N0033-52 [ICS,6]; C09B0011-08 [ICS,6]; C07C0039-14 [ICS,6]; C07C0039-38 [ICS,6]

	ECLA	C07C039/38; C07H021/00G; C09B011/00; C09B011/08; C12Q001/68E	<--
US 6020481	IPCI	C07H0021-04 [ICM, 6]	
	NCL	536/026.600; 536/025.340; 544/105.000; 549/223.000; 549/224.000	
	ECLA	C07C039/38; C07H021/00G; C09B011/00; C09B011/08; C12Q001/68E	<--
US 5840999	IPCI	C07C0039-14 [ICM, 6]; C07C0037-68 [ICS, 6]	
	NCL	568/735.000; 568/737.000; 568/753.000; 568/757.000	
	ECLA	C07C039/38; C07H021/00G; C09B011/00; C09B011/08; C12Q001/68E	<--
CA 2250014	IPCI	C09B0057-14 [ICM, 6]; C07H0019-04 [ICS, 6]; C07C0039-38 [ICS, 6]; C07C0309-43 [ICS, 6]; G01N0033-52 [ICS, 6]; C07C0255-53 [ICS, 6]; C12Q0001-68 [ICS, 6]; C07C0215-86 [ICS, 6]; C07C0217-94 [ICS, 6]	<--
CA 2450501	IPCI	C09B0057-14 [ICM, 7]; C07H0021-00 [ICS, 7]; C07C0039-38 [ICS, 7]; C07C0309-43 [ICS, 7]; C07C0255-53 [ICS, 7]; G01N0033-58 [ICS, 7]; C12Q0001-68 [ICS, 7]; C07D0311-78 [ICS, 7]; C07C0215-86 [ICS, 7]; C07C0217-94 [ICS, 7]	<--
AU 9724323	IPCI	C09B0011-24 [ICM, 6]; C09B0011-28 [ICS, 6]; C07H0021-00 [ICS, 6]; C12Q0001-68 [ICS, 6]; G01N0033-52 [ICS, 6]; C09B0011-08 [ICS, 6]; C07C0039-14 [ICS, 6]; C07C0039-38 [ICS, 6]	<--
EP 891393	IPCI	C09B0011-24 [ICM, 6]; C09B0011-28 [ICS, 6]; C07H0021-00 [ICS, 6]; C12Q0001-68 [ICS, 6]; G01N0033-52 [ICS, 6]; C09B0011-08 [ICS, 6]; C07C0039-14 [ICS, 6]; C07C0039-38 [ICS, 6]	<--
AT 181741	IPCI	C09B0011-24 [ICM, 6]; C09B0011-28 [ICS, 6]; C07H0021-00 [ICS, 6]; C12Q0001-68 [ICS, 6]; G01N0033-52 [ICS, 6]; C09B0011-08 [ICS, 6]; C07C0039-14 [ICS, 6]; C07C0039-38 [ICS, 6]	<--
JP 2000500183	IPCI	C09B0011-28 [ICM, 7]; C07C0039-14 [ICS, 7]; C07C0039-38 [ICS, 7]; C07D0311-78 [ICS, 7]; C07F0009-24 [ICS, 7]; C07H0019-06 [ICS, 7]; C07H0019-16 [ICS, 7]; C07H0021-00 [ICS, 7]; C09B0011-28 [ICS, 7]; C12N0015-09 [ICS, 7]; C12Q0001-68 [ICS, 7]; G01N0033-533 [ICS, 7]	<--
JP 2003192931	IPCI	C09B0011-28 [ICM, 7]; C07C0039-38 [ICS, 7]; C12N0015-00 [ICS, 7]; C12N0015-09 [ICS, 7]; C12Q0001-68 [ICS, 7]; C09K0011-06 [ICS, 7]	<--
US 6303775	IPCI	C07H0021-04 [ICM, 7]	
	NCL	536/026.600; 544/105.000; 549/223.000; 549/224.000	
	ECLA	C07C039/38; C07H021/00G; C09B011/00; C09B011/08; C12Q001/68E	<--
US 2002115067	IPCI	C12Q0001-70 [ICM, 7]; C12Q0001-68 [ICS, 7]; C07H0021-04 [ICS, 7]; C07D0491-04 [ICS, 7]; C07D0311-78 [ICS, 7]	
	NCL	435/005.000	
	ECLA	C07C039/38; C07H021/00G; C09B011/00; C09B011/08; C12Q001/68E	<--
US 2004225119	IPCI	C12Q0001-68 [ICM, 7]; C07H0021-04 [ICS, 7]; C07D0311-78 [ICS, 7]	
	NCL	536/025.320	
	ECLA	C07C039/38; C07H021/00G; C09B011/00; C09B011/08; C12Q001/68E	<--
OS	MARPAT	127:328679	
GI			



- AB A class of **asym.** monobenzoxanthene compds. useful as fluorescent **dyes** are disclosed having structure I where Y1 and Y2 are individually hydroxyl, amino, iminium, or oxygen; R1-R8 are hydrogen, fluorine, chlorine, alkyl, alkene, alkyne, sulfonate, amino, amido, nitrile, alkoxy, linking group, and combinations thereof; and R9 is acetylene, alkane, alkene, cyano, substituted Ph, and combinations thereof. The invention further includes novel intermediate compds. useful for the synthesis of **asym.** benzoxanthene compds. having general structure II where substituents R3-R7 correspond to like-referenced substituents in the structure described above, and Y2 is hydroxyl or amine. In another aspect, the invention includes methods for synthesizing the above **dye** compds. and intermediates. In yet another aspect, the present invention includes reagents labeled with the **asym.** benzoxanthene **dye** compds., including deoxynucleotides, dideoxynucleotides, phosphoramidites, and polynucleotides. In an addnl. aspect, the invention includes methods utilizing such **dye** compds. and reagents including dideoxy polynucleotide sequencing and fragment anal. methods.
- ST **asym** benzoxanthene fluorescent **dye** synthesis biochem;
DNA sequencing benzoxanthene fluorescent **dye**
- IT DNA sequence analysis
Fluorescent **dyes**
Fluorometry
Nucleic acid hybridization
PCR (polymerase chain reaction)
(**asym.** benzoxanthene **dyes** preparation for biochem. applications)
- IT Deoxyribonucleotides
Polynucleotides
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(benzoxanthene **dye** conjugates; **asym.** benzoxanthene **dyes** preparation for biochem. applications)
- IT Nucleotides, biological studies
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(dideoxynucleotides, benzoxanthene **dye** conjugates; **asym.** benzoxanthene **dyes** preparation for biochem. applications)
- IT 3301-79-9, 6-Carboxyfluorescein 155911-13-0
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(**asym.** benzoxanthene **dyes** preparation for biochem. applications)
- IT 120718-52-7, TAMRA 142975-90-4 142975-92-6 155911-15-2 197854-71-0

RL: ARG (Analytical reagent use); NUU (Other use, unclassified); PRP (Properties); ANST (Analytical study); USES (Uses)
(**asym.** benzoxanthene **dyes** preparation for biochem. applications)

IT 66-22-8DP, Uracil, benzoxanthene **dye**-labeled, preparation
71-30-7DP, Cytosine, benzoxanthene **dye**-labeled 120-73-0DP,
Purine, derivs., benzoxanthene **dye** conjugates 289-95-2DP,
Pyrimidine, derivs., benzoxanthene **dye** conjugates 1500-85-2DP,
1H-Pyrrolo[2,3-d]pyrimidin-4-amine, benzoxanthene **dye** conjugates
7355-55-7DP, benzoxanthene **dye** conjugates
RL: ARG (Analytical reagent use); NUU (Other use, unclassified); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)

(**asym.** benzoxanthene **dyes** preparation for biochem. applications)

IT 197854-94-7P
RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(**asym.** benzoxanthene **dyes** preparation for biochem. applications)

IT 197854-83-4P 197854-86-7P 197854-89-0P 197854-91-4P 197984-52-4P
197984-53-5P 197984-54-6P 197984-55-7P 197984-56-8P 197984-57-9P
198030-42-1P

RL: ARG (Analytical reagent use); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)

(**asym.** benzoxanthene **dyes** preparation for biochem. applications)

IT 197854-99-2P
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)

(**asym.** benzoxanthene **dyes** preparation for biochem. applications)

IT 3416-05-5D, polynucleotides containing 4097-22-7D, Dideoxyadenosine, polynucleotides containing 7481-89-2D, Dideoxycytidine, polynucleotides containing 85326-06-3D, polynucleotides containing

RL: PRP (Properties)

(**asym.** benzoxanthene **dyes** preparation for biochem. applications)

IT 132-86-5, 1,3-Dihydroxynaphthalene 703-59-3, 1H-2-Benzopyran-1,3(4H)-dione 81742-10-1 197854-74-3 197855-02-0

RL: RCT (Reactant); RACT (Reactant or reagent)

(**asym.** benzoxanthene **dyes** preparation for biochem. applications)

IT 95-88-5P 108-46-3P, 1,3-Benzenediol, preparation 22479-46-5P
81742-06-5P, 2-Chloro-4-methoxyresorcinol 103068-41-3P 197855-01-9P
197855-04-2P 197855-05-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(**asym.** benzoxanthene **dyes** preparation for biochem. applications)

L100 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1997:226928 HCAPLUS

DN 126:212377

ED Entered STN: 09 Apr 1997

TI Preparation of pyrimidine **nucleosides** as thymidine kinase inhibitors and virucides

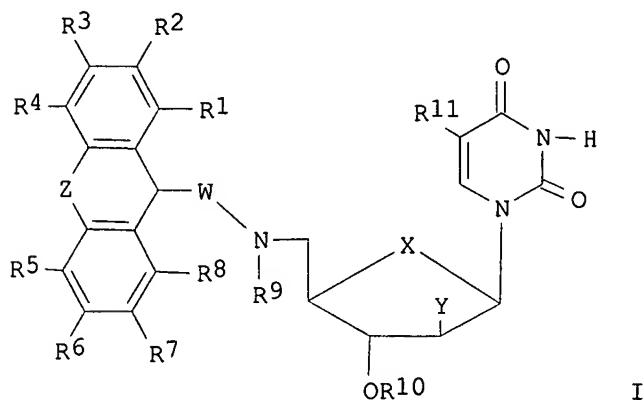
IN Lambert, Robert Wilson; Martin, Joseph Armstrong; Merrett, John Herbert; Parkes, Kevin Edward Burdon; Thomas, Gareth John

PA F. Hoffmann-La Roche Ag, Switz.
 SO PCT Int. Appl., 79 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C07H0019-06
 ICS C07H0019-09
 CC 33-9 (Carbohydrates)
 Section cross-reference(s): 1, 7
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9706178	A1	19970220	WO 1996-EP3259	19960724 <--
	W: AL, AU, BB, BG, BR, CA, CN, CZ, EE, GE, HU, IL, IS, JP, KP, KR, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9667868	A1	19970305	AU 1996-67868	19960724 <--
	ZA 9606432	A	19970204	ZA 1996-6432	19960729 <--
PRAI	GB 1995-15978	A	19950804	<--	
	GB 1996-8199	A	19960419	<--	
	WO 1996-EP3259	W	19960724	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
WO 9706178	ICM	C07H0019-06	
	ICS	C07H0019-09	
	IPCI	C07H0019-06 [ICM,6]; C07H0019-09 [ICS,6]	
	ECLA	C07H019/06F	<--
AU 9667868	IPCI	C07H0019-06 [ICM,6]; C07H0019-09 [ICS,6]	<--
ZA 9606432	IPCI	A61K [ICM,6]; C07H [ICS,6]	<--
OS	MARPAT	126:212377	
GI			



AB Pyrimidine **nucleosides** I, wherein R1 to R8 each individually represent hydrogen, halogen, cyano, lower alkyl, halo-lower alkyl, lower alkoxy, lower cycloalkyl or aryl; or R1 and R2 together or R2 and R3 together or R3 and R4 together represent a fused benzene ring; R9 represents hydrogen or lower alkyl; R10 represents hydrogen, lower alkyl, lower alkenyl, lower alkynyl, aryl-lower alkyl, lower cycloalkyl-lower

alkyl, acyl, 2-pyrrolidinylcarbonyl or a group for the formula
 $-C(O)-CH(R_{12})-NH_2$; R_{11} represents halogen, lower alkyl, halo-lower alkyl
 or lower cycloalkyl; R_{12} represents hydrogen, lower alkyl, aryl-lower
 alkyl, lower alkylthio-lower alkyl, amino-lower alkyl or
 (4-imidazolyl)-lower alkyl; W represents CH_2 , $C(O)$ or $C(S)$; X represents
 CH_2 or O ; Y represents hydrogen, fluorine or hydroxy; Z represents O , S ,
 SO , SO_2 , silyl, or amine; and pharmaceutically acceptable salts of those
 compds. I, which are basic inhibit viral thymidine kinase and are useful
 as antiviral agents. Thus, 2',5'-dideoxy-5-ethyl-5'-[(9-xanthenyl)-
 carboxamido]-uridine was prepared and tested for its activity against HSV-1
 ($IC_{50} = 4.2$ nmol) and HSV-2 thymidine kinase ($IC_{50} = 0.34$ nmol).

ST pyrimidine nucleoside prepn virucide kinase inhibitor

IT Antiviral agents

(preparation of pyrimidine nucleosides as thymidine kinase
 inhibitors and virucides)

IT **Pyrimidine nucleosides**

RL: BAC (Biological activity or effector, except adverse); BSU (Biological
 study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of pyrimidine nucleosides as thymidine kinase
 inhibitors and virucides)

IT 9002-06-6, Thymidine kinase

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL
 (Biological study); PROC (Process)

(HSV-1 and HSV-2; preparation of pyrimidine nucleosides as
 thymidine kinase inhibitors and virucides)

IT 188026-77-9P 188029-48-3P 188029-50-7P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological
 study, unclassified); RCT (Reactant); SPN (Synthetic preparation); THU
 (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT
 (Reactant or reagent); USES (Uses)

(preparation of pyrimidine nucleosides as thymidine kinase
 inhibitors and virucides)

IT 2488-15-5P 35959-38-7P 188026-86-0P 188026-94-0P 188027-11-4P

188027-21-6P 188027-53-4P 188027-59-0P 188027-70-5P 188027-73-8P

188027-79-4P 188027-91-0P 188027-99-8P 188028-10-6P 188028-17-3P

188028-31-1P 188028-40-2P 188028-49-1P 188028-56-0P

188028-62-8P 188028-73-1P 188028-80-0P 188028-82-2P

188028-83-3P 188028-86-6P 188028-88-8P 188029-03-0P 188029-05-2P

188029-06-3P 188029-07-4P 188029-08-5P 188029-09-6P 188029-11-0P

188029-18-7P 188029-19-8P 188029-20-1P 188029-22-3P 188029-28-9P

188029-30-3P 188029-34-7P 188029-43-8P 188029-61-0P 188029-67-6P

188029-73-4P 188029-77-8P 188029-87-0P 188029-94-9P 188030-03-7P

188030-06-0P 188030-10-6P 188030-13-9P 188030-15-1P 188030-21-9P

188030-23-1P 188030-30-0P 188030-33-3P 188030-37-7P 188030-42-4P

188030-48-0P 188030-54-8P 188030-65-1P 188030-67-3P 188030-68-4P

188030-69-5P 188030-71-9P 188030-74-2P 188030-79-7P 188030-86-6P

188030-90-2P 188060-86-8P 188060-87-9P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological
 study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of pyrimidine nucleosides as thymidine kinase
 inhibitors and virucides)

IT 50-45-3, 2,3-Dichlorobenzoic acid 50-73-7, 2,3,5-Trichlorobenzoic acid

82-07-5, Xanthene-9-carboxylic acid 90-44-8, Anthrone 112-67-4,

Palmitoyl chloride 118-91-2, 2-Chlorobenzoic acid 120-83-2,

2,4-Dichlorophenol 225-20-7, 12H-Benzo[a]xanthene 367-12-4,

2-Fluorophenol 405-39-0 612-35-1, 2-Benzylbenzoic acid 768-66-1,

2,2,6,6-Tetramethylpiperidine 937-14-4, 3-Chloroperoxybenzoic acid

1143-20-0 1149-26-4 1437-03-2 1892-57-5, 1-Ethyl-3-

(dimethylaminopropyl)carbodiimide 2557-78-0, 2-Fluorothiophenol
 2592-95-2, 1-Hydroxybenzotriazole 3080-30-6 4519-39-5 4521-61-3,
 3,4,5-Trimethoxybenzoyl chloride 10530-85-5 17394-14-8,
 9H-Thioxanthene-9-carboxylic acid 18355-74-3, Methyl
 2,3-difluorobenzoate 19312-06-2 19745-07-4 21908-85-0 21993-93-1
 25152-20-9 25952-53-8, 1-Ethyl-3-(3'-dimethylaminopropyl)carbodiimide
 hydrochloride 27063-50-9 37611-32-8 37677-17-1, 1-
 (Bromomethyl)cyclohexene 43144-73-6 56605-80-2, 1-Chloroxanthone
 70020-72-3 70384-51-9 73255-09-1 82737-61-9 83546-42-3
 84500-36-7 90760-95-5 92151-20-7 105281-21-8 107942-92-7
 108274-20-0 108896-86-2 110567-22-1 119411-87-9 119424-77-0
 119424-78-1 188026-90-6 188027-43-2 188027-48-7 188027-67-0
 188027-87-4 188028-06-0 188028-53-7 188028-68-4,
 7H-Benzo[c]xanthene-7-carboxylic acid 188030-17-3 188030-25-3
 188030-27-5 188030-46-8 188030-97-9

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of pyrimidine **nucleosides** as thymidine kinase
 inhibitors and virucides)

IT 166-88-1P, Spiro[anthracene-9(10H),1'-cyclopropane] 887-26-3P
 4159-04-0P 6962-60-3P 42332-94-5P 56175-83-8P 57732-89-5P
 87033-71-4P 148527-68-8P 171720-95-9P 171720-99-3P 171721-00-9P
 171721-04-3P 171866-29-8P 171866-30-1P 174172-97-5P 188027-02-3P
 188027-16-9P 188027-38-5P 188027-56-7P 188027-64-7P 188027-76-1P
 188027-95-4P 188028-14-0P 188028-21-9P 188028-26-4P 188028-37-7P
 188028-42-4P 188028-45-7P 188028-47-9P **188028-59-3P**,
 12H-Benzo[a]xanthene-12-carboxylic acid 188028-87-7P 188028-94-6P
 188028-96-8P 188028-99-1P 188029-01-8P 188029-10-9P 188029-13-2P
 188029-14-3P 188029-15-4P 188029-16-5P 188029-17-6P 188029-21-2P
 188029-32-5P 188029-38-1P 188029-41-6P 188029-46-1P 188029-54-1P
 188029-64-3P 188029-70-1P 188029-72-3P 188029-75-6P 188029-79-0P
 188029-81-4P 188029-84-7P 188029-90-5P 188029-92-7P 188029-96-1P
 188029-98-3P 188030-01-5P 188030-08-2P 188030-11-7P 188030-19-5P
 188030-35-5P 188030-40-2P 188030-51-5P 188030-66-2P 188030-70-8P
 188030-78-6P 188030-81-1P 188030-83-3P 188030-85-5P 188030-88-8P
 188030-95-7P 188032-94-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)

(preparation of pyrimidine **nucleosides** as thymidine kinase
 inhibitors and virucides)

IT **188028-62-8P**

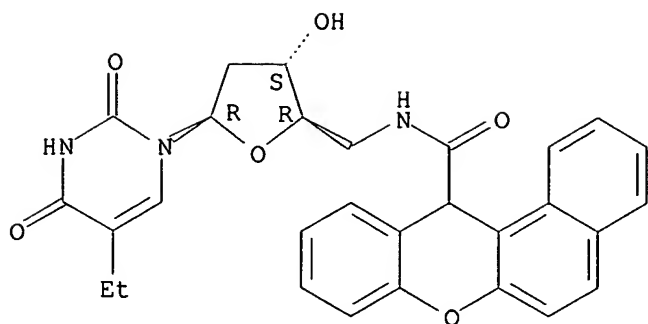
RL: BAC (Biological activity or effector, except adverse); BSU (Biological
 study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of pyrimidine **nucleosides** as thymidine kinase
 inhibitors and virucides)

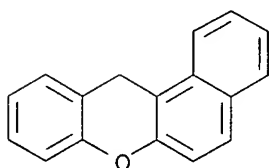
RN 188028-62-8 HCAPLUS

CN Uridine, 5'-[(12H-benzo[a]xanthen-12-ylcarbonyl)amino]-2',5'-dideoxy-5-
 ethyl- (9CI) (CA INDEX NAME)

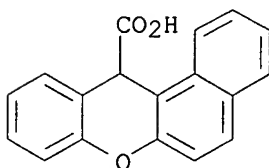
Absolute stereochemistry.



IT 225-20-7, 12H-Benzo[a]xanthene
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of pyrimidine **nucleosides** as thymidine kinase
 inhibitors and virucides)
 RN 225-20-7 HCAPLUS
 CN 12H-Benzo[a]xanthene (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 188028-59-3P, 12H-Benzo[a]xanthene-12-carboxylic acid
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation of pyrimidine **nucleosides** as thymidine kinase
 inhibitors and virucides)
 RN 188028-59-3 HCAPLUS
 CN 12H-Benzo[a]xanthene-12-carboxylic acid (9CI) (CA INDEX NAME)



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FILE 'USPAT2' ENTERED AT 08:04:28 ON 30 JAN 2006
 CA INDEXING COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)

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L104 ANSWER 1 OF 2 USPATFULL on STN

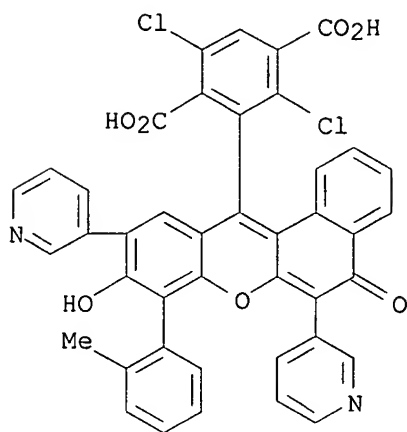
AN 2001:59627 USPATFULL
 TI Electron-deficient nitrogen heterocycle-substituted fluorescein dyes
 IN Upadhyay, Krishna G., Union City, CA, United States
 Menchen, Steven M., Fremont, CA, United States
 Zhen, Weiguo, Foster City, CA, United States
 PA PE Corporation, Foster City, CA, United States (U.S. corporation)
 PI US 6221604 B1 20010424
 AI US 2000-498702 20000207 (9)
 DT Utility
 FS Granted
 EXNAM Primary Examiner: Ceperley, Mary E.
 LREP Andrus, Alex
 CLMN Number of Claims: 67
 ECL Exemplary Claim: 1,25
 DRWN 16 Drawing Figure(s); 14 Drawing Page(s)
 LN.CNT 1874

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

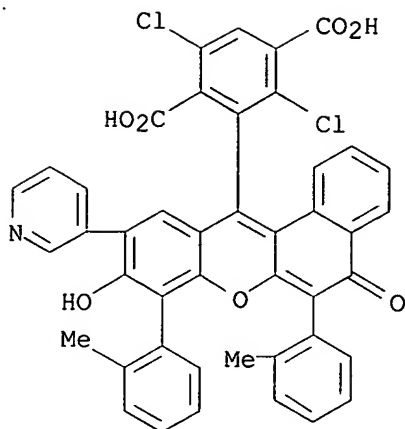
AB The invention provides compositions electron-deficient nitrogen heterocycle-substituted fluorescein dyes and methods in which the dyes are conjugated to substrates and used as detection labels in molecular biology experiments. The electron-deficient nitrogen heterocycles include pyridine, quinoline, pyrazine, and the like. Substrates include polynucleotides, nucleosides, nucleotides, peptides, proteins, carbohydrates, and ligands.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 334977-25-2P 334977-26-3P 334977-28-5P
 (preparation of electron-deficient nitrogen heterocycle-substituted fluorescein dyes as labeling reagents for preparing mol. probes)
 RN 334977-25-2 USPATFULL
 CN 1,4-Benzenedicarboxylic acid, 2,5-dichloro-3-[9-hydroxy-8-(2-methylphenyl)-5-oxo-6,10-di-3-pyridinyl-5H-benzo[a]xanthen-12-yl]- (9CI) (CA INDEX NAME)

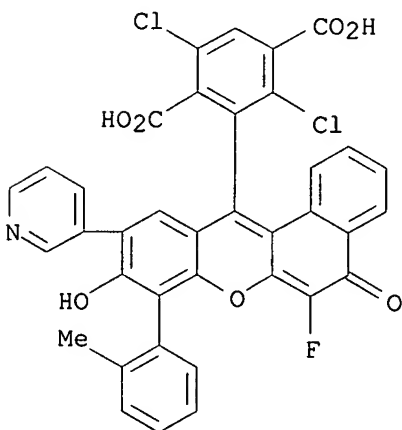


RN 334977-26-3 USPATFULL
 CN 1,4-Benzenedicarboxylic acid, 2,5-dichloro-3-[9-hydroxy-6,8-bis(2-methylphenyl)-5-oxo-10-(3-pyridinyl)-5H-benzo[a]xanthen-12-yl]- (9CI) (CA INDEX NAME)



RN 334977-28-5 USPATFULL

CN 1,4-Benzenedicarboxylic acid, 2,5-dichloro-3-[6-fluoro-9-hydroxy-8-(2-methylphenyl)-5-oxo-10-(3-pyridinyl)-5H-benzo[a]xanthene-12-yl]- (9CI)
(CA INDEX NAME)



L104 ANSWER 2 OF 2 USPATFULL on STN

AN 1999:170771 USPATFULL

TI Aromatic-substituted xanthene dyes

IN Benson, Scott Conrad, Oakland, CA, United States

Menchen, Steven Michael, Fremont, CA, United States

Theisen, Peter David, South San Francisco, CA, United States

Upadhy, Krishna Gajanan, Union City, CA, United States

Hauser, Joan Dale, Oakland, CA, United States

PA The Perkin-Elmer Corporation, Foster City, CA, United States (U.S. corporation)

PI US 6008379 19991228

AI US 1997-942067 19971001 (8)

DT Utility

FS Granted

EXNAM Primary Examiner: Houtteman, Scott W.

LREP Grossman, Paul D., Andrus, Alex, Cavini Pease, Ann M.

CLMN Number of Claims: 48

ECL Exemplary Claim: 1

DRWN 6 Drawing Figure(s); 6 Drawing Page(s)

LN.CNT 1508

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A class of aromatic-substituted xanthene compounds useful as fluorescent dyes is disclosed, the compounds having the general structure where Y.sub.1 and Y.sub.2 taken separately are selected from the group consisting of hydroxyl, oxygen, imminium, linking group and amine, or Y.sub.1 taken together with R.sub.2 is cyclic imine, or Y.sub.2 taken together with R.sub.3 is cyclic amine; R.sub.2, R.sub.3, R.sub.5, and R.sub.7 taken separately are selected from the group consisting of hydrogen, fluorine, chlorine, lower alkyl, lower alkene, lower alkyne, sulfonate, sulfone, amino, imminium, amido, nitrile, lower alkoxy, phenyl, and linking group; R.sub.1 taken separately is selected from the group consisting of phenyl, substituted phenyl, polycyclic aromatic, substituted polycyclic aromatic, linking group and electron-rich heterocycle, or when taken together with R.sub.7 is selected from the group consisting of electron-rich heterocycle and indene; R.sub.4 taken separately is selected from the group consisting of amino, amido, phenyl, substituted phenyl, polycyclic aromatic, substituted polycyclic aromatic, indene, linking group and electron-rich heterocycle, or when taken together with R.sub.5 is selected from the group consisting of phenyl, substituted phenyl, polycyclic aromatic, substituted polycyclic aromatic, indene, and electron-rich heterocycle; and R.sub.6 is selected from the group consisting of acetylene, lower alkyl, lower alkene, cyano, phenyl, substituted phenyl, and heterocyclic aromatic. In another aspect, the invention includes methods for synthesizing the above dye compounds and intermediates. In yet another aspect, the present invention includes reagents labeled with the asymmetric benzoxanthene dye compounds, including deoxynucleotides, dideoxynucleotides, phosphoramidites, and polynucleotides. In an additional aspect, the invention includes methods utilizing such dye compounds and reagents including dideoxy polynucleotide sequencing and fragment analysis methods.

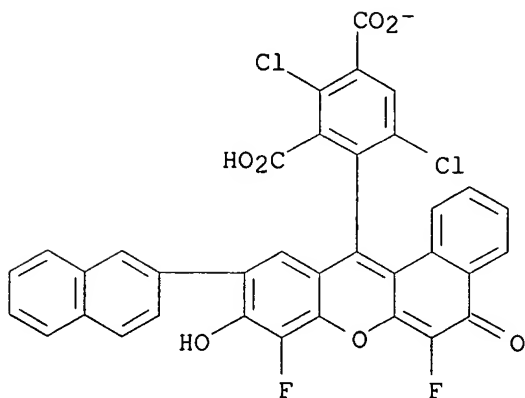
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 222547-73-1P

(dye; production of fluorescent xanthene dyes for labeling of nucleotides)

RN 222547-73-1 USPTAFULL

CN 1,3-Benzenedicarboxylic acid, 2,5-dichloro-4-[6,8-difluoro-9-hydroxy-10-(2-naphthalenyl)-5-oxo-5H-benzo[a]xanthen-12-yl]-, ion(1-) (9CI) (CA INDEX NAME)



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(FILE 'HOME' ENTERED AT 07:24:51 ON 30 JAN 2006)
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FILE 'HCAPLUS' ENTERED AT 07:25:19 ON 30 JAN 2006

L1 1 S US20040225119/PN OR US2003-656826#/AP, PRN
E BENZON S/AU
E BENSON S/AU
L2 42 S E3, E5
L3 40 S E22-E24
E MENCHEN S/AU
L4 71 S E3, E6-E10
E THEISEN P/AU
L5 14 S E3, E4, E11-E13
E HENNESSEY K/AU
L6 3 S E3, E9
E FURNISS V/AU
L7 3 S E4
E HAUSER J/AU
L8 356 S E3
E HAUSER JOAN/AU
L9 5 S E3-E5
L10 1 S L1 AND L2-L9
L11 21 S L2-L9 AND DYE?/SC, SX
L12 34 S L2-L9 AND DYE?/CW, CT
L13 53 S L2-L9 AND DYE?
L14 54 S L11-L13
L15 8 S L14 AND ASYM?
L16 8 S L10, L15
L17 46 S L14 NOT L16

FILE 'REGISTRY' ENTERED AT 07:30:45 ON 30 JAN 2006

FILE 'HCAPLUS' ENTERED AT 07:30:45 ON 30 JAN 2006

SET SMARTSELECT ON
L18 SEL L16 1- RN : 143 TERMS
SET SMARTSELECT OFF

FILE 'REGISTRY' ENTERED AT 07:30:45 ON 30 JAN 2006

L19 143 S L18
L20 1 S L19 AND OC5-C6-C6-C6/ES
E 5268/RID
L21 27196 S E3
E 5268.46/RID
L22 530 S E3
L23 7 S E26
L24 523 S L22 NOT L23
L25 7 S L20, L23

FILE 'HCAOLD' ENTERED AT 07:32:37 ON 30 JAN 2006

L26 0 S L25
L27 13 S L24

FILE 'HCAPLUS' ENTERED AT 07:33:14 ON 30 JAN 2006

L28 3 S L25
L29 298 S L24

FILE 'REGISTRY' ENTERED AT 07:34:35 ON 30 JAN 2006

jan delaval - 30 january 2006

L30 0 S L19 AND OC4/ES AND (P AND N)/ELS
 L31 4 S L19 AND OC4/ES
 L32 0 S L19 AND NUCLEIC?/FS
 L33 STR
 L34 50 S L33
 L35 0 S L25 AND OC4/ES
 L36 3 S L24 AND OC4/ES
 L37 1 S L36 AND N/ELS
 L38 STR L33
 L39 50 S L38
 L40 6615 S L38 FUL
 SAV TEMP L40 FRED656/A
 L41 0 S L40 AND OC5-C6-C6-C6/ES

FILE 'HCAPLUS' ENTERED AT 07:38:43 ON 30 JAN 2006

L42 1 S L37
 L43 3262 S L40
 L44 0 S L28 AND L43
 L45 0 S L29 AND L43
 L46 1 S L28,L42 AND (PD<=19960401 OR PRD<=19960401 OR AD<=19960401)
 L47 1 S L28,L42 AND (PD<=19970401 OR PRD<=19970401 OR AD<=19970401)
 L48 1 S L28,L42 AND (PD<=19970326 OR PRD<=19970326 OR AD<=19970326)
 L49 2 S L1-L17 AND L28
 L50 0 S L1-L17 AND L29
 L51 3 S L1-L17 AND L40
 L52 13 S L16,L46-L51
 L53 13 S L42,L52
 L54 7 S L53 AND (PY<=1996 OR PRY<=1996 OR AY<=1996)
 L55 9 S L53 AND (PY<=1997 OR PRY<=1997 OR AY<=1997)
 L56 9 S L54,L55
 L57 5 S L56 AND L28,L29,L42,L43
 L58 4 S L56 NOT L57
 L59 2 S L28,L29 AND L1-L17
 L60 1 S L59 AND (PY<=1997 OR PRY<=1997 OR AY<=1997)
 L61 5 S L57,L60
 L62 0 S L28 AND (PY<=1996 OR PRY<=1996 OR AY<=1996)
 L63 1 S L28 AND (PY<=1997 OR PRY<=1997 OR AY<=1997)
 L64 5 S L61,L63
 L65 6 S L1,L64
 L66 6 S L65 AND L1-L17,L28,L29,L42-L65
 L67 3 S L28,L29 AND ?NUCLEOTID?
 L68 2 S L28,L29 AND ?NUCLEOSID?
 L69 2 S L28,L29 AND ?OLIGO?
 L70 0 S L28,L29 AND ?NUCLEIC?
 L71 2 S L28,L29 AND (DNA OR CDNA OR RNA OR MRNA)
 E NUCLEIC ACIDS/CT
 L72 1 S L28,L29 AND E3+OLD,NT,PFT,RT/CT
 L73 0 S L28,L29 AND E3-E16,E20
 L74 0 S L28,L29 AND E73-E75
 L75 0 S L28,L29 AND E136-E141
 L76 0 S L28,L29 AND E151+OLD,NT
 L77 0 S L28,L29 AND E165+OLD,NT
 L78 2 S L28,L29 AND E174+OLD,NT
 L79 1 S L28,L29 AND E199-E215
 L80 0 S L28,L29 AND E222+OLD,NT
 L81 2 S L28,L29 AND E252+OLD,NT
 L82 1 S L28,L29 AND E310-E327
 E POLYNUCLEOTIDE/CT
 L83 1 S L28,L29 AND E8-E10
 L84 1 S L28,L29 AND E8+OLD,NT,PFT,RT

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      E DNA/CT
L85      1 S L28,L29 AND E3+OLD,NT,PFT,RT
L86      0 S L28,L29 AND (E78+OLD,NT,PFT,RT OR E79+OLD,NT,PFT,RT OR E80+OL
      E E169+ALL
L87      0 S L28,L29 AND E3+OLD,NT
L88      0 S L28,L29 AND E21+OLD,NT,PFT,RT
L89      0 S L28,L29 AND E22+OLD,NT,PFT,RT
L90      0 S L28,L29 AND E23+OLD,NT,PFT,RT
L91      0 S L28,L29 AND GENETIC?/SC,SX
L92      6 S L67-L91
L93      2 S L92 AND (PY<=1997 OR PRY<=1997 OR AY<=1997)
L94      6 S L66,L93
      SEL HIT RN

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FILE 'REGISTRY' ENTERED AT 08:00:39 ON 30 JAN 2006

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L95      14 S E1-E14

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FILE 'HCAPLUS' ENTERED AT 08:00:59 ON 30 JAN 2006

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L96      2 S L94 AND L28,L29
L97      1 S L94 AND L1
L98      3 S L96,L97
L99      1 S L93 AND L20
L100     3 S L98,L99
L101     3 S L94 NOT L100

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FILE 'REGISTRY' ENTERED AT 08:02:45 ON 30 JAN 2006

FILE 'HCAPLUS' ENTERED AT 08:03:05 ON 30 JAN 2006

FILE 'USPATFULL, USPAT2' ENTERED AT 08:04:02 ON 30 JAN 2006

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L102     1 S L20
L103     2 S L25
L104     2 S L102,L103

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FILE 'USPATFULL, USPAT2' ENTERED AT 08:04:28 ON 30 JAN 2006

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L105     15 S L24
L106     0 S L105 AND G01N/IPC

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